

THE RED BOOK



1936 EDITION

THERMAL INSULATION
SOUND CONTROL

UNITED STATES GYPSUM COMPANY

UNITED STATES GYPSUM COMPANY

THERMAL INSULATION

General Commodities Division

SOUND CONTROL SERVICE

Engineering Sales Division

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- (3) Rocklath, Metal Lath and Accessories; Steel-H Studs; USG Resilient and Standard X Plastering Systems; Gypsum Plasters and Finishing Lime; Sheetrock, The Fireproof Wallboard.
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Thermal Insulation

General Commodities Division

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WEATHERWOOD* INSULATION

Structural Board Type

PHYSICAL CHARACTERISTICS

DESCRIPTION—Weatherwood Insulating Board (Also Red Top* Insulation and Red Top Weatherwood Insulation) is a felted wood fiber product treated to make it highly moisture resistant. It is so formed that it produces a homogeneous board, free from laminations and tendencies to split through the center.

NOTE—United States Gypsum Company has three Insulation Board manufacturing mills: St. Joseph, Missouri; Greenville, Mississippi; and Lisbon Falls, Maine. While the raw materials from which the St. Joseph Mill insulation is made are basically different from those of the Greenville and Lisbon Falls Mills, the physical characteristics of the products of all three mills are essentially the same.

LOW THERMAL CONDUCTIVITY—The average thermal conductivity established in tests is .33 B.t.u.'s per hour, per sq. ft., per one inch thickness, per degree F.

RESISTANCE to MOISTURE—NON-ABSORPTION—Tests show that this board, after being submerged in water for a period of two (2) hours, has an average water absorption of less than 15 per cent. It absorbs less paint than any similar product.

STRUCTURAL STRENGTH—The tensile strength is over 350 lbs. per sq. in., and the modulus of rupture, over 500 lbs.

DURABILITY—There is nothing in this board that will deteriorate prematurely and impair the original insulation value. Since the board is homogeneous, the fibers being interwoven through the sheet,

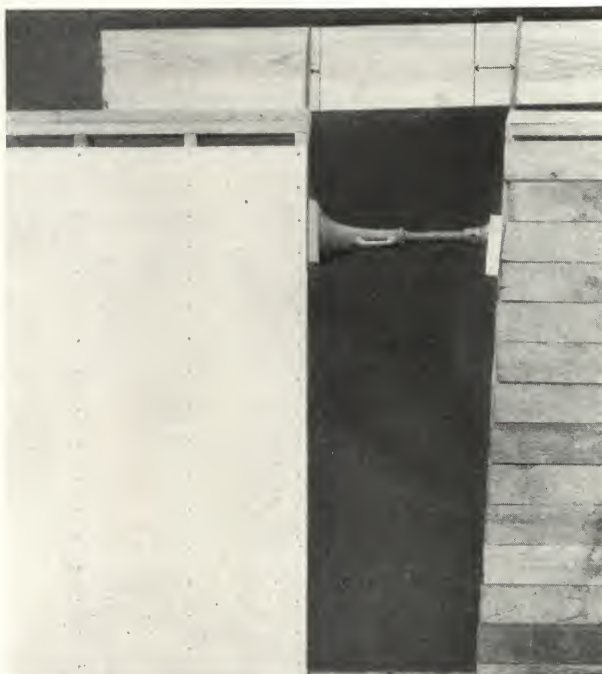
it will not split. The weatherproofing chemical with which the fibers are treated makes the board distinctly distasteful to rodent and insects. Weatherwood Insulation Board is also furnished, when specified, with special treatment making it proof against attack by termites and fungi growth (dry rot). This treatment does not change its natural ivory color or other physical characteristics.

NON-COMPRESSIBILITY RESILIENCE—When laid over roof decks under standard roofing materials, it is sufficiently firm to prevent denting or cutting of the roofing under normal use. Weatherwood will not compress under furring strips.

UNIFORMITY—Adequate laboratory control and mill inspection assure uniformity in density and structural strength.

APPEARANCE—TEXTURE and COLOR—The high quality of the product is reflected in its fine appearance. One surface is finished in a uniform semi-rough texture and the other in a smooth "skin" surface. One side, where so specified, may be obtained in either a sanded smooth or a brushed finish. The standard color is an attractive deep cream. All Weatherwood products, however, may be obtained in a choice of three colors—cream, gray and light brown.

COST—Advanced methods of manufacture, quantity production, and national distribution assure a reasonable cost. Because of the light weight and large units, the board is easy to install at low labor costs. It is cut and nailed like lumber.



*Trade-Mark

WEATHERWOOD PRODUCTS

BUILDING BOARD—Used as wallboard and sheathing, $\frac{1}{2}$ in., $\frac{3}{4}$ in., and 1 in. thick; 4 ft. wide; and 4, 5, 6, 7, 8, $8\frac{1}{2}$, 9, $9\frac{1}{2}$, 10 and 12 ft. long.

INSULATING PANEL STRIPS—For covering joints of Weatherwood Building Board when used as a wallboard. $\frac{3}{8}$ in. thick, 2 in. wide, and 9 ft. long; $\frac{3}{8}$ in. thick, 4 in. wide, and 9 ft. long and $\frac{1}{2}$ in. thick, 4 in. wide, and 9 ft. long—all with beveled edges.

MOULDINGS—In addition to the Insulating Panel Strips, eight (8) standard mouldings (see details) are carried in stock in 9 ft. lengths in three (3) colors—ivory, gray, and tan. Other special shapes are obtainable when required.

TONGUE-and-GROOVE INSULATING SHEATHING—Used as sheathing and roof boarding. Needs no headers, because applied crosswise to studding the same as lumber. The tongue-and-groove joint insures a heat-sealed joint that will not bulge. Fits standard window frames, $\frac{1}{2}$, $\frac{3}{4}$ and 1 in. thick, 16 and 18 in. wide, and 4, 5, 6, 7, 8, $8\frac{1}{2}$, 9, $9\frac{1}{2}$, 10 and 12 ft. long with long edges tongue-and-grooved.

INSULATING LATH—Used as a base for gypsum sanded or wood fiber plaster. $\frac{1}{2}$ in., $\frac{3}{4}$ in., and 1 in. thick; 18 in. wide; and 48 in. long. The 48-in. edges are tongue-and-grooved and beveled, preventing plaster from being forced between sheets to cause uneven walls and ceilings.

METAL REINFORCED INSULATING LATH—Used as a base for gypsum plaster where plaster cracks must be kept to a minimum. $\frac{1}{2}$ in., $\frac{3}{4}$ in., and 1 in. thick; 18 in. wide, and 48 in. long with T and G and beveled joint on long edges and a wire fabric attached to one long edge so that the reinforcement can be slid into place over the joint after the lath is applied without further nailing. Where specified, it can be furnished with reinforcement on end edge as well as long edge.

ROOF INSULATION—Used over wood, concrete, steel, and gypsum roof decks. $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3, $3\frac{1}{2}$, and 4 inches thick; waterproof glue or staple laminated. The area of the unit is 22 inches wide by 47 inches long.

INSULATING TILE BOARD—insulating Tile Board is made in two types—Standard Density fabricated from Standard Weatherwood Board and Low Density.

Standard Density—Is adapted to general use for

decorative wall finishes. Made in three (3) thicknesses and two groups of standard sizes (areas) and in three (3) colors—standard ivory, gray, and tan, and in the three (3) surface finishes—smooth "skin," sanded smooth, and brushed.

Low Density—A special low density product used for sound correction where a low cost, attractive sound absorbent is required. Made in three (3) thicknesses and two groups of standard sizes (areas) and in two (2) surface finishes,—sanded and brushed. The standard color is ivory, but in the $\frac{1}{2}$ -inch thickness it is made also in gray and tan. The sound absorption at 512 Double Vibrations is:

$\frac{1}{2}$ inch thick.....	.40 D.V.
$\frac{3}{4}$ inch thick.....	.50 D.V.
1 inch thick.....	.60 D.V.

Thicknesses—Both standard and low density tiles are made in three (3) thicknesses— $\frac{1}{2}$, $\frac{3}{4}$, and 1 inch.

Sizes (Group 1)—Tile board with the long edges tongue-and-grooved. Specially designed for nailing application to standard framing. 16 in. x 32 in.; 18 in. x 32 in.; 24 in. x 32 in.; 18 in. x 48 in.; 24 in. x 48 in.

Sizes (Group 2)—Tile board with square edges. (Obtainable with all four edges tongued-and-grooved when so specified.) 6 in. x 12 in.; 12 in. x 12 in.; 12 in. x 24 in.; 8 in. x 16 in.; 16 in. x 16 in.; 24 in. x 24 in.

INSULATING PLANK—Used for interior wall finish and for wainscoting and similar treatment to combine insulation and decoration in one material. Insulating Plank is made with shiplap longitudinal edges and is furnished in three (3) colors—ivory, gray, and tan in three (3) surface finishes—smooth "skin," sanded smooth, and brushed.

Planks are furnished in two (2) types—Individual Planks or Multiple Planks. Each type furnished beaded or plain bevel design (see details).

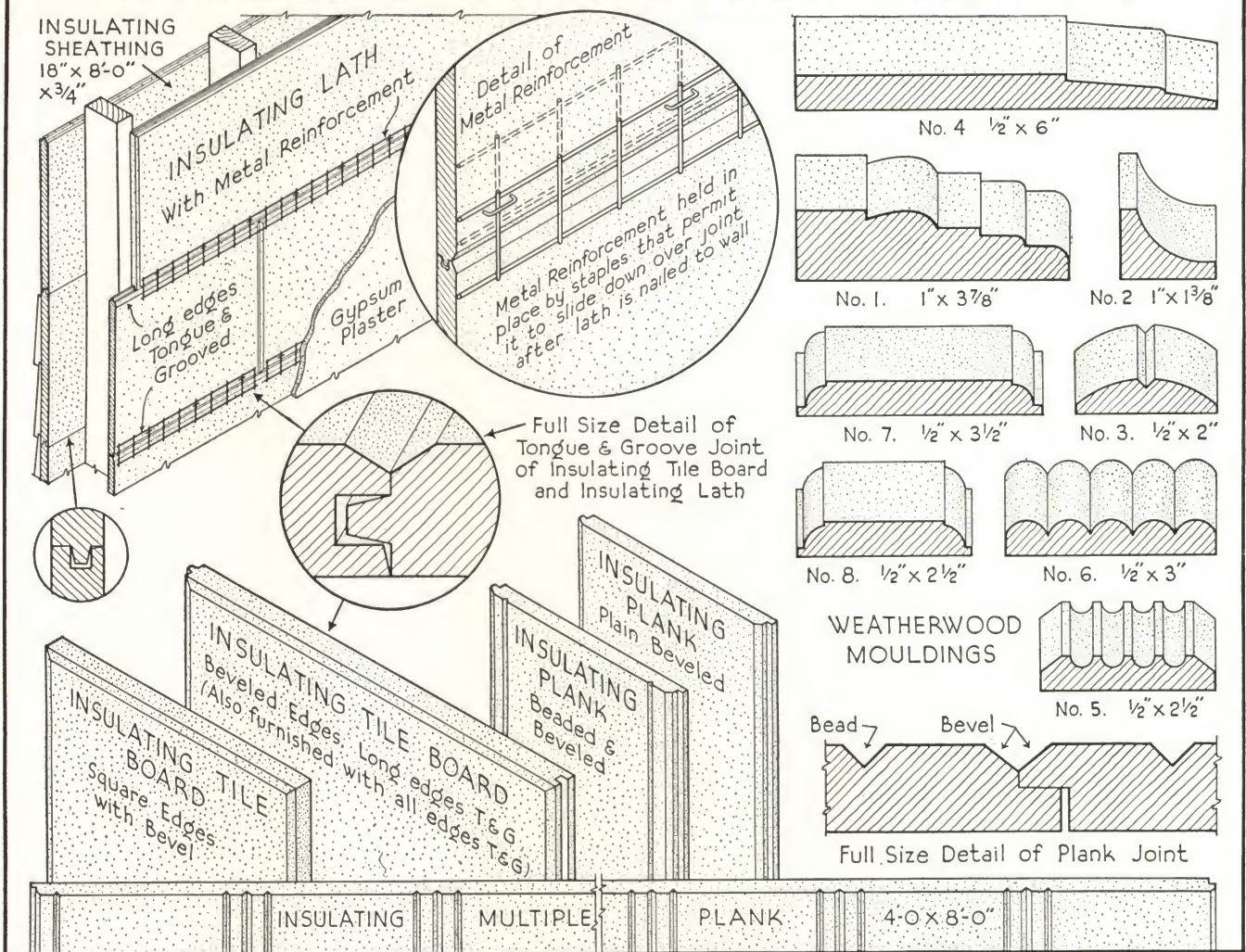
Individual Plank— $\frac{1}{2}$ inch thick, in widths 6, 8, 10, 12, and 16 inches by 6, 8, and 10 feet long.

Multiple Plank— $\frac{1}{2}$ inch thick, 4 ft. wide by 8 ft. long with beads or bevels spaced uniformly (equal plank widths) 6, 8, 12, or 16 inches on centers. Random spacing of beads or bevels can be furnished on special order not less than 6 inches apart.

NAIL-HYDE*—For filling nail holes, abrasions, and gouges in surface of Weatherwood Insulating Board products. Supplied in $2\frac{1}{2}$ -lb. packages, sufficient to treat about 1000 sq. ft. of board. Color when dry is same as board.

*Trade-Mark

DETAILS OF WEATHERWOOD PRODUCTS



SURFACE FINISH of WEATHERWOOD • ACTUAL SIZE

SMOOTH SKIN

BRUSHED

SANDED SMOOTH



Master Specifications

WEATHERWOOD INSULATION as SHEATHING and ROOF BOARDING

NOTE—On walls use under wood siding, shingles, stucco, or masonry veneer. On roofs use under shingles, slate, tile or similar rigid roof units which may be laid over wood furring strips.

NOTE—Notes are explanatory or advisory only and should not be used in the specifications.

NOTE—Select and include only those clauses which apply to the particular work. Words in bracketed bold face type are selective.

(1) CORRELATIVE PROVISIONS

NOTE—Provide for the following in other specification divisions.

NOTE—Weatherwood Insulation is not a nailing base.

(1a) **CONSTRUCTION**—Follow the recommendations of the Building Code Committee of the U. S. Department of Commerce and the National Lumber Manufacturers Association.

(1b) **WOOD SIDING**—All joints shall butt over the center of a stud.

(1c) **FURRING STRIPS**—Provide 1 x 2-in. furring strips properly spaced over Weatherwood Insulation to take shingles, slate, tile and similar wall and roof covering. Nails shall be sufficiently long to pass through the furring and the board and penetrate the framing member at least 1 in.

(1d) **STUCCO BASE**—Stucco must be reinforced with self-furring expanded metal exterior stucco lath secured to studs with nails sufficiently long to pass through the board and penetrate the stud at least 1 in.

(1e) **MASONRY VENEER TIES**—Provide masonry ties at each stud spaced 16 in. apart vertically. Nails shall be sufficiently long to pass through the board and penetrate the stud at least 1 in.

(1f) **FRAME FURRING, ETC.**—Provide in accordance with the details window and door frame furring strips to compensate for the thickness of Weatherwood Insulation.

NOTE—We advocate wide outside blind stops in frame construction. If, however, these are omitted, provide that the inside of the outside casings be lined with beveled strips of Weatherwood Insulation.

(2) WORK INCLUDED

NOTE—Here list and locate definitely the wall and roof

areas to be covered. If ½-in., ¾-in. and 1-in. thicknesses are to be used, list separately and the respective locations or areas covered.

(3) MATERIAL

(3a) **GENERAL**—[Sheathing] [and] [roof boarding] shall be Weatherwood Insulation Board as made by the United States Gypsum Company, 300 West Adams Street, Chicago.

(3b) **WALLBOARD SIZE**—Boards shall be full [½ in.] [and] [¾ in.] [and] [1 in.] thick [as above designated], 4 ft. wide by 4, 5, 6, 7, 8, 8½, 9, 9½, 10, or 12 ft. long as best adapted.

(3c) **TONGUE and GROOVE SHEATHING**—Board shall be tongue and groove sheathing [½ in.] [and] [¾ in.] [and] [1 in.] thick, [as above designated], [16 in.] [and] [18 in.] x 4, 5, 6, 7, 8, 8½, 9, 9½, 10 or 12 ft. long as best adapted.

(4) APPLICATION

(3a) **GENERAL**—Continuity of insulation is imperative.

(4a1) **Wallboard Sizes**—Apply boards with the length parallel with the framing members. Where possible, boards shall be of sufficient length to completely span between sills and plates or other structural members. Where end joints are necessary, these shall only be made centered over 2 x 4 in. headers cut in between framing members. Side joints shall center over framing members. Space ¼ in. apart at all edges. Bring the boards in close contact with window and door frames and trim.

(4a2) **Tongue and Groove Sheathing**—Apply boards at right angles to framing members. Fit the tongue and groove joints snugly together. Leave a ¼ in. space at end joints. Stagger end joints in successive courses.

(4b) **NAILS**—Galvanized roofing nails.

(4b1) Use 1½ in. nails for ½ in. thickness.

(4b2) Use 2 in. nails for ¾ in. and 1 in. thickness.

(4c) **NAILING**—

(4c1) **Wallboard Sizes**—At all edges space nails 3 in. apart on centers and ½ in. from the edge. On intermediate framing members, space nails 6 in. apart on centers. First nail the boards to intermediate studs and then nail the edges.

(4c2) **Tongue and Groove Sheathing**—Space nails 5½ in. apart, 4 nails to each support. Nail to intermediate studs first.



Master Specifications

WEATHERWOOD INSULATING LATH

NOTE—Use as an insulating plaster base.

NOTE—Notes are explanatory or advisory only and should not be included in the specifications.

NOTE—Select and include only those clauses which apply to the particular work. Words in bracketed bold face type are selective.

(1) CORRELATIVE PROVISIONS

NOTE—Provide for the following in other specification divisions.

(1a) **CONSTRUCTION**—Follow the recommendations of the Building Code Committee of the U. S. Department of Commerce and the National Lumber Manufacturers Association.

(1b) **FURRING**—Fur all exterior masonry walls to receive Weatherwood Lath with [1 x 2-in.] [specify] furring strips, accurately shimmed to a true, level plane, set 16 in. on centers. Substantially secured to the masonry.

(1c) **GROUND**S—Furnish and erect, substantially secured to framing members through the Weatherwood Lath, full $\frac{3}{8}$ in. grounds on exterior frame walls and full $\frac{1}{2}$ -in. grounds elsewhere.

NOTE—Full $\frac{1}{2}$ -in. thickness of plaster should be used over Weatherwood Lath. Where stock window and door frames are used, they provide for $\frac{1}{8}$ -in. thickness for lath and plaster; therefore on exterior frame walls, which are usually of less area due to window and door openings, a $\frac{3}{8}$ -in. thickness may be used. If special frames are detailed, provide for full $\frac{1}{2}$ -in. thickness of plaster over the lath.

(1d) PLASTERING—

(1d1) **Caution**—Do not wet Weatherwood Lath before applying plaster.

(1d2) **Cornerite**—Apply metal lath "cornerite" strips over Weatherwood Lath at all re-entrant angles and all corners not protected with corner beads.

(1d3) **Plaster**—Use gypsum cement or gypsum wood fiber plasters.

(1d4) **Thickness**—Full $\frac{3}{8}$ in. thick on exterior frame wall, elsewhere full $\frac{1}{2}$ in. thick, flush with grounds.

(1d5) **Application**—Apply in three (3) coats in accordance with the plaster manufacturer's specification. Surfaces shall be rodged to a true plane. All corners and angles shall be plumb and true. Wherever necessary and particularly on ceilings, provide plaster screeds to insure an even and uniform plaster thickness.

NOTE—The maintaining of a uniform and sufficient plaster thickness over a fibrous or board plaster base such as Weatherwood Lath, and especially on ceilings, cannot be too strongly stressed if permanent, satisfactory results are to be expected. Too frequently a weak, thin plaster coat, inadequate to withstand the usual strains of building settlement, shrinkage and vibration, results in plaster cracks which react against even the best of plaster bases.

(1d6) **Ventilation**—Provide adequate ventilation for the proper drying of the plaster work.

NOTE—Due to the moistureproof characteristics of Weatherwood Lath, all moisture emanating from the plastering operation must be carried off by the air coming in contact with the exposed surface. Particular attention to proper ventilation is necessary.

(2) WORK INCLUDED

NOTE—Here list and locate definitely the wall and ceiling areas to be covered. If $\frac{1}{2}$ in., $\frac{3}{4}$ in. and 1 inch thickness are used, list separately and the respective locations or areas covered.

(3) MATERIAL

Plaster shall be Weatherwood [Tongue and Groove and Beveled] [Metal Reinforced] Insulating Lath as made by the United States Gypsum Company, 300 West Adams Street, Chicago. Units shall be full [$\frac{1}{2}$ in.] [$\frac{3}{4}$ in.] [1 in.] thick [as designated above], 18 in. wide by 48 in. long.

(4) APPLICATION

(4a) **GENERAL**—Do not moisten lath before application. Apply lath, rough or textured side exposed, with the length at right angles to the framing [or furring] members. End joints shall center over framing members. Stagger end joints in successive courses on all walls and ceilings; likewise stagger end joints at juncture of walls and ceilings.

(4b) **SPACING**—Joints shall be brought tight in moderate contact. Units shall be spaced $\frac{1}{4}$ in. apart at ends.

(4c) NAILS—

(4c1) Use 1 $\frac{1}{8}$ in. 13 gauge, $\frac{3}{8}$ in. head, blued, sterilized, long point nails, for $\frac{1}{2}$ in. thickness.

(4c2) Use 6d common, blued or box nails, for $\frac{3}{4}$ in. and 1 in. thickness.

NOTE—Large headed nails are unnecessary.

(4d) **NAILING**—Space nails 5 $\frac{1}{2}$ in. apart on centers set $\frac{1}{2}$ in. from the edges. First nail to intermediate framing [or furring] members and then at ends. Secure long edges at angles of walls and ceilings, spacing nails 5 $\frac{1}{2}$ in. on centers and not more than $\frac{1}{2}$ in. from the edge.

(4e) **METAL REINFORCEMENT**—Slide metal reinforcement over joint after lath has been applied. Do not nail reinforcement.

(4f) **PREVENTION OF CONDENSATION**—In cold weather apply Weatherwood Insulation to exterior studs [furring] [rafters], etc. before temporary heat is applied.

NOTE—Because Weatherwood Lath does not permit passage of moisture, heating before lining the exterior cold walls, etc., results in a condensation of moisture from the warm, moist air on the inside of the sheathing and framing members. This originally forms as frost, which melts and must be absorbed gradually by the sheathing and frame, since it cannot pass the Weatherwood Lath barrier to be carried off by the air. Weatherwood Lath applied before heating insulates the warm, moist air from the cold exterior walls and eliminates this possibility of condensation.

Master Specifications

WEATHERWOOD INSULATION as INTERIOR FINISH

NOTE—Use an unplastered interior wall and ceiling finish, in its natural finish (unfinished), stained or painted. Unfinished or finished with stains, it has a decided value as an interior lining for sound absorption in halls, gymnasiums, churches, schools, etc. When used for acoustical correction, it should not be painted.

NOTE—Weatherwood Insulating Boards, Planks and other units when used for interior wall finish may be advantageously decorated by grooving, beading, etc., which may be accomplished on the job by any good mechanic with a Bevel-Devil or similar cutting or grooving tool.

NOTE—Notes are explanatory or advisory only and should not be included in the specifications.

NOTE—Select and include only those clauses which apply to the particular work. Words in bracketed bold face type are selective.

(1) CORRELATIVE PROVISIONS

NOTE—Provide for the following in other specification divisions.

NOTE—Weatherwood Insulation is not a nailing base.

(1a) CONSTRUCTION—Follow the recommendations of the Building Code Committee of the U. S. Department of Commerce and the National Lumber Manufacturers' Association.

(1b) FURRING—Fur [all] [exterior masonry] walls [and ceilings] to receive Weatherwood Insulating Tile with [1 x 2] [specify] furring strip, accurately shimmed to a true, level plane, set [specify distance apart to fit the size used] apart.

NOTE—Use where tile are nailed. See (4e3) for Cementing to Masonry.

(1c) FINISH—

NOTE—Weatherwood Boards or Tile Board may be left natural, or finished with stain or paint.

(1c1) Cleaning—Remove dirt or stains with art gum or dry wall-paper cleaner. Fill nail holes and abrasions with Red Top Nail-Hyde.

(1c2) Stain—Weatherwood Insulation takes water, alcohol or other types of stain admirably, either in single tones, panels or stencil design.

NOTE—Where used as acoustical correction, use stain only. Paint fills the pores and materially reduces the acoustical efficiency.

1c3) Paint—Size with water, glue or oil size before applying oil paint. Water paints, such as Texolite (a USG product), require no sizing.

(2) WORK INCLUDED

NOTE—Here list and locate definitely the wall and ceiling areas to be covered. If more than one thickness, color or surface texture is required, list separately and the respective locations or areas covered. If detail drawings are furnished reference to them here is a convenience.

(3) MATERIAL

(3a) Wall [and ceiling] finish shall be [Weatherwood Insulation Boards] [and] [Weatherwood Insulating] [Tile Board] [and] [Plank] [Panel Strips] [Mouldings] as made by the United States Gypsum Company, 300 West Adams Street, Chicago. Colors shall be [specify] and textures shall be [specify] [as designated] [on the detail drawings] [in par. 2].

NOTE—Specify "Weatherwood Insulation Boards" where exposed with natural, stained or painted finish. Specify Weatherwood Insulating Tile Board where tile effect is desired.

(3b) Size shall be [$\frac{1}{2}$ in.] [$\frac{3}{4}$ in.] [1 in.] thick by 4 ft. by 4, 5, 6, 7, 8, $8\frac{1}{2}$, 9, $9\frac{1}{2}$, 10 or 12 ft. long or units cut in panels of symmetrically disposed sizes [to conform with the detail drawings].

NOTE—Use clause above for natural, stained or painted finish. Select the thickness required for insulation value.

(3c) Size shall be [low density] [$\frac{1}{2}$ in.] [$\frac{3}{4}$ in.] [1 in.] thick Weatherwood Insulating Tile Board by [specify sizes] [sizes indicated on detail drawings]. [All four edges shall be tongue and grooved.]

NOTE—Specify low density where used particularly for acoustical sound absorption.

(4) APPLICATION

(4a) GENERAL—

(4a1) Weatherwood Boards—Continuity of insulation is imperative. Apply boards with the length parallel with the framing members. Where possible, boards shall be of sufficient length to completely span between sills and plates or other structural members. Where end joints are necessary, these shall only be made centered over 2 x 4-in. headers cut in between framing members. Side joints shall center over framing members.

(4a2) Weatherwood Tile Board (Tongue-and-Groove Type)—Do not moisten Tile Board before application. Apply [rough] [textured] [smooth] side exposed and tongue up, with the length at right angles to the framing [or furring] members. End joints shall center over framing members. Stagger end joints in successive courses on all walls and ceilings.

NOTE—The above application applies to the standard tongue-and-grooved, 32 and 48 in. long units nailed directly to the framing members.

(4a3) Weatherwood Tile Board (Square Edge Type)—Tile board shall be applied [over plaster surfaces] [by means of approved gum-like adhesive] [nailed to special furring strips spaced to accommodate tile sizes and pattern]. Tile shall be laid in the patterns designated [on the detail drawings] [in par. 2].

(4b) SPACING—

(4b1) For Weatherwood Boards—Boards shall be spaced $\frac{1}{8}$ in. to $\frac{1}{4}$ in. apart at all edges, if joints are covered—if not covered bring to moderate contact. Bring the boards in close contact with window and door frames and trim.

(4b2) **For Weatherwood Tile Board (Tongue and Groove Type)**—Tongue and groove joints shall be brought in moderate contact. 32-in. unit shall be spaced $\frac{1}{2}$ in. apart at ends; 48-in. unit shall be spaced $\frac{1}{8}$ in. apart at ends.

(4b3) **Weatherwood Tile Board (Square Edge Type)**—Tile shall be placed in moderate contact. Do not force tightly together.

(4c) FINISHING JOINTS OF WEATHERWOOD BOARDS—

(4c1) **Panel Strips or Mouldings**—Cover joints with Weatherwood Insulation [Panel Strips] [Mouldings] detailed. Fit neatly at all intersections or at points in contact with other trim. Secure with finishing nails as specified in (4e) or with approved adhesive.

(4d) **NAILS**—Use 2-in. finishing nails [for intermediate nailings on boards (not edges)] [on Tile Board].

Use 6d or 8d common nails at edges of boards.

(4e) NAILING AND CEMENTING—

(4e1) **For Weatherwood Boards or Multiple Planks**—Finishing

nails shall be driven at an angle with heads neatly set below the surface.

Fill nail holes with Red Top Nail-Hyde.

At all edges, space 6d or 8d common nails 6 in. apart on centers and $\frac{1}{2}$ in. from the edge.

On intermediate framing members, space finishing nails 9 in. apart on centers. First nail the boards to intermediate studs and then nail the edges.

(4e2) **For Weatherwood Tile Board or Individual Planks (Nailed)**—Space finishing nails $5\frac{1}{2}$ in. apart on centers set $\frac{1}{2}$ in. from the edges.

First nail to intermediate framing [or furring] members and then at ends.

Secure long edges at angles of walls and ceilings, spacing nails $5\frac{1}{2}$ in. on centers and not more than $\frac{1}{2}$ in. from the edge. Nails shall be driven at an angle and heads neatly set below the surface.

(4e3) **For Weatherwood Tile Board (Cemented to Masonry)**—Apply Weatherwood Tile Board to masonry by means of an approved gum-like adhesive. Spot adhesive on back of tile at four corners and at center. Press tile firmly against surface.



Master Specifications

WEATHERWOOD INSULATION as EXTERIOR FINISH

NOTE—While generally speaking of limited architectural adaptability, Weatherwood Insulation Board as exterior finish has many applications, especially when its moisture-proof insulation value is considered.

It is particularly adapted to the lighter, less permanent construction where cost is a prime factor, and especially for buildings of but one story, such as small dwellings, garages, summer cottages, portable temporary schools, etc. It is an ideal exterior finish for such temporary construction buildings as offices and tool and material storehouses.

(1) CONSTRUCTION PROVISIONS

Follow the recommendations of the Building Code Committee of the U. S. Department of Commerce and the National Lumber Manufacturers' Association.

Studs and joists should be set on either 16-inch or 24-inch centers depending on height and length of spans. Framing should be braced as in standard frame construction.

(2) APPLICATION, ETC.

The specifications for Weatherwood Sheathing apply likewise to Weatherwood Exterior Finish.

(3) PAINTING

Size thoroughly with a dependable water, glue or oil size. Finish with two (2) coats of any good exterior house paint applied in accordance with the manufacturer's directions.

NOTE—The painting of Weatherwood Insulation surfaces should be done before the application of the joint battens, trim, etc.

(4) JOINT BATTENS, TRIM, ETC.

Cover all joints between the Weatherwood boards and all edges with wood batten strips or exterior wood trim, secured through the insulation to the framing members.

WEATHERWOOD INSULATION OVER ROOF DECKS

Since roof insulation applied over the various types of roof decks under Built-up Roofing is customarily purchased by and applied by the roofing contractor usually in one continuous operation, the complete detailed specifications covering the application of Weatherwood Roof Deck Insulation will be found in the USG Built-up Roofing Specification Manual.



INSULATING SHEETROCK* INSULATING ROCKLATH*

Aluminum Foil Types

2 IN 1 MATERIALS—Insulating Sheetrock and Insulating Rocklath are standard $\frac{3}{8}$ -in. thick products, upon the back of which is mounted a thin, smooth, bright sheet of aluminum. Insulating Sheetrock or Insulating Rocklath are applied to the interior face of exterior walls, rafters, or top story ceilings with the bright aluminum side next the framing members. Thus installed, their heat insulating value is equal to or better than that of standard $\frac{1}{2}$ in. thick Fiber Insulating Board—at the same time Insulating Sheetrock is an excellent interior wall finish and Insulating Rocklath, an excellent plaster base. When the joints of Insulating Sheetrock are reinforced and finished in accordance with the standard Sheetrock specifications, the interior surface may be papered or painted.

ADVANTAGES—In addition to their insulating value, they have all the advantages of Sheetrock (The Fireproof Wallboard) and of Rocklath (the Fireproof Plaster Base) described in detail in The General Commodities Section. They are fireproof, permanent, do not expand or contract, and are easy to install.

The fireproof character of Sheetrock and Rocklath are of outstanding importance. Because of the addition of the metal surface, they prove an even greater fire protection. Both being hydrated materials, resist fire until their hydrated character is destroyed. With metal applied to one side of the board, the escape of moisture from the burning area is further retarded and the circulation of air, and the passage of hot gases, necessary for combustion, is reduced.

A NEW INSULATING PRINCIPLE—Heat travels in three (3) ways as follows:

(1) **Conduction**—Hold a poker in a hot fire and the heat travels from the fire to the hand along the poker by conduction.

(2) **Convection**—Stand over an open register; the hot air flows up the pipe. This heat travel is by convection.

(3) **Radiation**—Heat travels from a fireplace and warms the hand without warming the air between. This is radiant heat.

Heat passing through the walls or roof of a frame building (from inside out or from outside in) must pass across the air space

between the studs and rafters. Approximately 75% of such heat travel is by radiation.

Insulating Sheetrock and Insulating Rocklath prevent radiant heat passage. They stop summer heat by reflecting it back as a mirror reflects light.

In winter time, when the heat flow is outward, Insulating Sheetrock and Insulating Rocklath do not insulate by reflection—they insulate by reducing the flow of heat by radiation.

Bright surfaces that are efficient in reflecting light and radiant heat are also efficient in refusing to emit or give off heat by radiation (Kirchoff's Law of Physics).

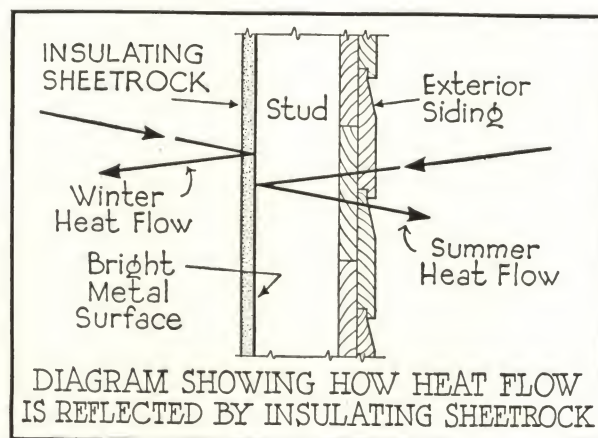
Insulating Sheetrock and Insulating Rocklath reflect or refuse to emit approximately 90% of the radiant heat coming in contact with them, whereas other materials, such as wood, brick, and fiber reflect but 10% and absorb 90%.

The bright aluminum surface does not dull appreciably. The slight ultimate oxidation reduces but little its reflecting and non-radiating quality.

AUTHENTIC TESTS—Tests on actual wall constructions conducted by Professor F. B. Rowley of the University of Minnesota show Insulating Sheetrock to be as effective as half-inch fiber board insulation in the same construction.

With an outside temperature of 125° F. and an inside temperature of 80° F. simulating summer conditions, the coefficients of heat transmission were 0.205 for the Insulating Sheetrock construction and 0.227 for the fiber board.

With temperatures outside of 0° F. and inside of 80° F. simulating winter conditions, the coefficients of heat transmission were 0.168 for the Insulating Sheetrock construction, and 0.181 for the fiber board.



APPLICATION—Both Insulating Sheetrock and Insulating Rocklath are applied as specified for standard Sheetrock and Rocklath respectively, with the metal side placed against the framing members. For application specifications, see "General Commodities" section for "Sheetrock" and "Rocklath."

The metal must not be placed in direct contact with another surface.

*Trade-Mark

RED TOP* INSULATING WOOL

Fill and Blanket Type • Wall Thick • Fireproof

DESCRIPTION—Red Top Insulating Wool is an extremely light, fluffy wool insulation made of silica—a fireproof material.

The nature of the raw material used, particularly as to purity, permits accurate manufacturing control—the product is absolutely uniform and consists of snowy white, long-fibre wool. It contains no "shot" or other non-insulating materials that add weight.

TYPES—There are five (5) distinct types of Red Top Insulating Wool, each designed to fill a specific application need.

Bulk Wool—Red Top Insulating Bulk Wool is shipped in paper bags, each containing 19 sq. ft. when applied 4 in. thick. The face is identified and crossed by a double red stripe.

Bats—Red Top Insulating Wool Bats are 4 inches thick, 15 inches wide by 18 inches long, shipped in cartons containing 37½ square feet (20 bats). A heavy paper is cemented to the back of each bat and the face is crossed by a double red stripe. The stripe is the architect's and owner's assurance that the material is the full 4 inch thickness of Red Top Insulating Wool Bat and that the bat has not been split into a lesser thickness or an inferior material substituted. Red Top Insulating Wool Bats are also furnished in a paper backed 2 inch thickness (40 bats to the carton)

identified on the face by a double blue stripe on each bat.

Strip Wool—Red Top Insulating Strip Wool, a newly developed type, is a continuous 4 inch thick, 15 inch wide by 9 feet long blanket, shipped in cartons containing 33¾ square feet consisting of 3 strips, each folded into thirds for easy removal and application. A heavy paper is cemented to the back of each strip, and the face is identified by a continuous double red stripe. Red Top Insulating Strip Wool is also furnished in a paper backed 2 inch thickness (6 strips to the carton) identified on the face by a continuous double blue stripe.

Nodulated—Red Top Nodulated Insulating Wool is designed for pouring into open spaces, such as between open attic joists or similar areas. It is shipped in paper bags, each containing 7 cubic feet.

Granulated—Red Top Granulated Insulating Wool is especially developed for the "blown-in" method of installation. It is shipped in paper bags, each containing 7 cubic feet.

RESILIENCE—AN OUTSTANDING CHARACTERISTIC—Unlike other fireproof wool insulating materials, Red Top Insulating Wool is springy and resilient—it will not mat. If compressed, it recovers virtually all of its original volume when the pressure is released and is easily fluffed up to its original volume.



Note Full Thickness Over Keys



Red Top Bulk Wool—Ideal for Existing Homes

*Trade-Mark

LOW THERMAL CONDUCTIVITY—The heat conductivity of Red Top Insulating Wool (standard density) is .266 B.t.u.'s per inch thickness, per square foot, per hour, per degree F. difference in inside and outside temperatures. (Tests by Armour Institute of Technology.)

Unusually high in insulating efficiency, it is outstanding when, as customarily used, it is wall thick (4 in.). So used its rating is .066.

LIGHT WEIGHT (DENSITY)—In its standard density, Red Top Insulating Wool weighs but 1½ pounds per cubic foot—the lightest of this class of materials.

CLEAN • VERMINPROOF • PERMANENT—Red Top Insulating Wool is clean and odorless. Insects will not infest it and rodents will not nest in it or displace it. Once placed, it will not disintegrate, mat or settle. The fibers are tough, thoroughly interlaced, and resilient, and remain permanently efficient.

EASY TO INSTALL • LOW COST—An economical form in which to use Red Top Insulating Wool is Bulk Wool. Its dimensions fit snugly into building framework spaced 16 inches on centers. One bag has an actual area of 19 square feet 4 in. thick and when placed between studs, joists or rafters insulates an area of 20¼ square feet. Where desired the paper backed bats or strip wool can likewise be used full wall thick. Insulating efficiency considered, Red Top Insulating Wool is one of the most economical insulating materials on the market. Any intelligent workman can install it in any of its forms (except that which must

be blown in by machine) with a minimum of cost.

ADDED FIRE PROTECTION—In frame construction this insulation fills completely and permanently the usual void between the wall studs with fireproof material thus eliminating these fire carrying flues. Top floor ceilings and roofs blanketed with 4 in. of the material act as fire stops.

CONVENIENT PACKAGES—The manner in which Red Top Insulating Wool is packaged adds to its convenience in shipping and handling. Strip Wool is shipped three strips to a convenient carton. Bats are shipped in cartons. The extreme resiliency of Red Top Insulating Wool makes it possible to compress the strips and bats in relatively small volumes. Bulk wool is shipped in bags slightly compressed but easily fluffed up to its original density of 1½ lbs. per cu. ft. Fluffed to its original density, the bag contains 6½ cu. ft. of the material.

COVERAGE OF RED TOP INSULATING WOOL

Type of wool	Volume per package at standard density	Coverage per package at standard density	
		4-in. thick including 2x4's	4-in. thick excluding 2x4's
Strip wool in cartons	11¼ cu. ft.	36 sq. ft.	33¾ sq. ft.
Bat wool in cartons	12½ cu. ft. (20 bats)	40 sq. ft.	37½ sq. ft.
Bulk wool in paper bags	6½ cu. ft.	20¼ sq. ft.	19 sq. ft.



Any House Can Be Insulated with Red Top Wool



Complete Insulation—Walls and Ceilings

Master Specifications

RED TOP INSULATING WOOL

NOTE—Notes are explanatory or advisory only and should not be included in the specifications.

NOTE—Select and include only those clauses which apply to the particular work. Words in bracketed bold face type are selective.

(1) WORK INCLUDED

NOTE—Here list and locate definitely the wall, ceiling, and roof areas to be insulated.

(2) MATERIALS

Insulation shall be Red Top Insulating Wool as made by the United States Gypsum Company, 300 West Adams Street, Chicago.

(2a) BULK WOOL—Insulation shall be bulk wool type.

NOTE—Recommended where framing requirements, thickness, or particular location make this type more practical to install on new work than the strip or bat type.

(2b) BATS—Insulation shall be in paper backed bat form, 4 in. thick, 15 in. wide x 18 in. long. With identifying double red face stripe.

NOTE—Recommended for new work where this type is more convenient to handle and install than Strip Wool.

(2c) STRIP WOOL—Insulation shall be in paper backed strip form, 4 in. thick, 15 in. wide x 9 ft. long. With identifying double red face stripe.

NOTE—Due to ease of handling and rapidity of installation, this type is recommended for new work.

(2d) NODULATED—Insulation shall be Nodulated type.

NOTE—Specify for hand poured installations.

(2e) GRANULATED—Insulation shall be granulated type.

NOTE—Specify for machine "blown in" installations, particularly suited to existing work.

(3) INSTALLATION—NEW WORK

Maintain a continuous uniformly thick blanket of insulation over all areas to be insulated.

(3a) WALLS—

(3a1) Strip Wool—Holding the material in the strip form as it comes from the carton, place the exposed end of the material tight against the top framing member with the paper away from the exposed wool face against the inside of the sheathing and open the strip downward forcing the continuous wool bat between the studs with continuous contact at edges. Where the height requires it, start a second strip at the bottom of first roll with ends in close contact and proceed as above. Fill all irregular interstices and particularly those around the window and door frames with material cut to fit.



Red Top Bat Wool Installed in New Home



Red Top Strip Wool Used in Attic

(3a2) Bat Type—Install the bats ends to end between the framing members. Force the bats firmly against the studs and together at ends. Fill all irregular interstices and particularly those around window and door frames with bats cut to fit.

(3a3) Bulk Wool—Pack the loose wool, fluffed to a density of 1½ lbs. per cu. ft., between the framing members back of the plaster base as this is being applied. Fill all irregular interstices and around window and door frames.

(3b) CEILINGS—Permanent attic floors shall not be installed until insulation is in place.

(3b1) Strip Wool—Holding the material in the strip form as it comes from the carton, place the exposed end of the material against a wall with the paper away from the exposed wool face against the ceiling between the joists. Lay toward the opposite wall or plate, forcing the continuous wool bat between the joists with continuous contact at edges. Butt adjoining strip ends together in close contact.

(3b2) Bat Type—Lay the bats end to end over the finished ceiling, forced firmly between the joists, and together at ends.

(3b3) Bulk Wool—Lay a continuous layer [*specify*] thick over the finished ceiling between the ceiling joists.

(3c) SLOPING ROOFS—

(3c1) Strip Wool—Holding the material in the strip form as it comes from the carton, place the exposed end of the material tight against the [*ridge*] [*collar beams*] with the paper away from the exposed wool face against the inside of the roof boarding and open the strip downward forcing the continuous wool bat between the rafters with continuous contact at edges.

Where attic is unfinished, the insulation shall be retained by

strips nailed to the joist sides; laths nailed over the joists spaced approximately 6 in. on centers; or covered with inexpensive wall board or open mesh wire cloth.

Where attic is finished, follow the insulation installation with application of plaster base as the work progresses.

(3c2) Bat Type—Install the bats end to end between the rafters with one face against the underside of the roof boarding. Force the bats firmly in place and together at ends.

Where attic is unfinished, the insulation shall be retained by strips nailed to joist sides; laths nailed over the joists spaced approximately 6 in. on centers; or covered with inexpensive wall board or open mesh wire cloth.

Where attic is finished, follow the insulation installation with application of plaster base as the work progresses.

(3c3) Bulk Wool—Pack the bulk wool between the rafters to their full depth. Follow the insulation installation with the application of plaster base as the work progresses.

If attic is not to be finished, place tacks at 6 inch intervals in rafters and lace wire in a lattice back and forth to hold the insulation in place or apply open mesh wire cloth over the face of the rafters.

(4) INSTALLATION—EXISTING WORK

Maintain a continuous uniformly thick blanket of insulation over all areas to be insulated. For open areas in attics, etc., use strip, bat or bulk wool.

For inaccessible sections, fill all interstices between the framing members with "blown in" granular type insulation.

All access holes for the introduction of blower hose shall be neatly and accurately made. After installation repair all such holes and leave the building in as good condition as found.



Safe Insulation Around Electric Wiring



Red Top Wool Fits Snugly in Corners

Sound Control Service

Engineering Sales Division

RESEARCH, DEVELOPMENT and SERVICE

ACOUSTICAL MATERIALS ASSOCIATION—Manufacturers of sound absorbing materials have formed the Acoustical Materials Association, the purpose of which is to promote research in architectural acoustics and furnish architects and builders with reliable data on acoustical materials. Official Laboratories have been established under the direction of the leading authorities on this subject. The Association published its first data in February, 1934, and its third publication in July, 1935. You may obtain a copy of this data by calling the nearest USG Office.

RESEARCH and DEVELOPMENT—All USG Sound Control materials and Systems are the result of directed research at the Building Materials Laboratory of the United States Gypsum Company. This laboratory is associated with and located at the Lewis Institute of Technology in Chicago and covers 10,000 sq. ft. of floor space on four floors of a modern building, especially equipped for research and testing. The research work is carried out under the direction of trained physicists and chemists, architectural engineers and investigators, comprising a personnel of some fifty individuals. Here new materials and methods are produced, tested and developed.

The laboratory is one of the few possessing a complete sound chamber, owned and maintained by a manufacturer of acoustical products; a carefully calibrated acoustical measuring stick to use during the development of acoustical products and as

a guide to the scientists who are developing them. It is also used for control tests on the company's output, so that the acoustical absorption and sound insulation afforded by the sound control products of the United States Gypsum Company is constantly maintained equal or superior to the published determinations of recognized acoustical laboratories.

SERVICE—The United States Gypsum Company maintains a fully competent experienced corps of acoustical engineers, completely equipped to assist architects on any problem involving acoustical correction or sound insulation. They render this service, without charge and without obligation, in advance of the building construction or will gladly advise corrective methods for existing buildings in which sound difficulties are experienced.

In auditoria this service includes analysis of the effect of curved or other sound concentrating surfaces, and investigation for objectionable echoes. In each case it indicates changes in design where they seem advisable. Where the reverberation is too great for comfort, recommendations are made for economically covering the necessary areas with acoustical absorbents.

Because the United States Gypsum Company handles all phases of the problem and provides, not only materials for sound absorption, but also a complete system for the insulation of sound, architects are assured that absorption materials will not be recommended where sound insulation is required or vice versa. See USG System of Sound Insulation, page 23.



ACOUSTONE*
Actual Size Showing Surface Texture

ACOUSTONE • USG ACOUSTICAL TILE

Incombustible • Decorative

PHYSICAL CHARACTERISTICS

COMPOSITION and THICKNESS—Acoustone* is formed from filaments of specially processed stone. Its extremely fine, almost microscopic, porosity provides an unusually high degree of sound absorption. The standard thickness is $\frac{3}{4}$ in.

TYPES—Acoustone is made in two distinct types:

Acoustone D—This type, slightly more porous than the Acoustone A, is paintable. Lead and oil and similar paints applied in several coats over the surface do not reduce its sound absorbing efficiency.

Acoustone A—This type, while it may be decorated with lacquers and reduced paint coatings without materially affecting its acoustical properties, is designed to be used in its natural form.

ABSORPTION—Coefficients below are by the Official Laboratories of the Acoustical Materials Association:

Acoustone D	Thick- ness	128 Cyc.	256 Cyc.	512 Cyc.	1024 Cyc.	2048 Cyc.	Red. Coef.
Unpainted	$\frac{3}{4}$ -in.	.19	.39	.66	.78	.65	.60
Painted (2 c.)	$\frac{3}{4}$ -in.	.24	.52	.69	.66	.58	.60
Unpainted	1.05-in.	.37	.65	.84	.79	.72	.75
Painted (2 c.)	1.05-in.	.43	.71	.83	.77	.69	.75

Absorption Coefficients are based on cemented to plaster mountings.
Those for Acoustone A are slightly less than above.

SIZES (AREAS)—Tiles are made in the following standard rectangular sizes: 6 x 6 in., 6 x 12 in., 12 x 12 in., 9 x 18 in. Special shapes and sizes may be obtained when required.

OUTSTANDING DECORATIVE APPEARANCE—In addition to its high degree of acoustical efficiency, it is outstanding in its decorative effect. The surface texture is quite similar to travertine stone, surpassing it, however, in the richness and warmth it supplies through a wider range of color tones. From the viewpoint of design, it is adapted to harmonious, unobtrusive inclusion in any decorative scheme. Ashlar masonry walls for interiors can be constructed with Acoustone facings that are as beautiful as natural stone. Interiors in the modern trend may be delightfully handled in tile with a metallic lustre in many shades and colors. The wide variety of shapes likewise adds flexibility—the tile may be laid up in many interesting patterns. There is no disconcerting mechanical effect. Colored borders, cornices in relief, and modified coffered work are easily obtained.

Joints between tile units may be accented with a V profile or suppressed as desired. Struck or rusticated joints are available.

COLORS—Both Acoustone D and Acoustone A are furnished in light-reflecting white, ivory or cream. Special colors will be made to order. Acoustone D may be painted with ordinary lead and oil or similar wall paints without affecting its acoustical efficiency. Acoustone A may be brush or spray painted with any of the brushing or spraying lacquers. Sprayed lacquers, containing bronze powders in suspension, give metallic effects. Tests prove that painting with lacquer does not reduce the acoustical efficiency of the tile. Oil paint, diluted with equal parts of thinner, may be brush applied without significant reduction in absorption.

INCOMBUSTIBLE—Since it is made from specially processed stone filaments, Acoustone is incombustible.

LIGHT WEIGHT—Due to its extremely light weight, it is safely and permanently cemented over plaster in both new and old work.

EASILY CLEANED—The complete and thorough cleaning of the porous structure of Acoustone with an ordinary vacuum cleaner thoroughly evacuates any foreign matter that may become lodged in the tile. Accumulations of grease and dirt on the surface of the material are easily removed by the same method or by using ordinary wall paper cleaner, restoring the original color and appearance. The cost of such cleaning is much less than the cost of decorating an equal area of wall or ceiling; and the wear on the tile, incidental to the cleaning, is so negligible that no appreciable difference is made either in its appearance or sound absorbing ability after repeated cleanings.

DURABLE—Because Acoustone is made from especially processed stone permanently tinted and completely cleanable, it is as enduring as the structure in which it is installed.

SANITARY—Acoustone offers complete sanitation. It is inorganic, durable, completely cleanable. It provides an aseptic, readily and cheaply cleaned sound absorbent for hospitals, sanatoria and restaurants.

INSTALLATION—The manufacture, installation and acoustical design of Acoustone is entirely under the control and is the sole responsibility of the United States Gypsum Company and its authorized erectors.

*Registered Trade-Mark

This policy enables the purchaser to buy a result without reference to the manner in which the result is obtained. It definitely fixes the responsibility as it frees the purchaser or the architect from all details, engineering and installation.

Such a policy, of course, means that the United States Gypsum Company will refuse to install Acoustone where satisfactory results will not be obtained.

The company is prepared to make the installation of Acoustone in busy offices, banks, restaurants, brok-

ers' offices, hospitals, etc., at times so that there will be no interruption in the usual routine.

For this work only experienced mechanics are employed, who will carefully protect the walls, floors and furnishings against damage during the installation.

ECONOMICAL—Acoustone is not expensive to install. It costs more than ordinary wall and ceiling decorating, but by eliminating redecorating costs, over a period of years, the expense is less.

Specifications • ACOUSTONE

LONG FORM

NOTE—Notes are explanatory or advisory only and should not be included in the specifications.

(1) WORK INCLUDED

NOTE—List and locate all walls and ceilings to be covered with Acoustone. If more than one thickness of Tile is used, specify the thickness for the various areas.

(2) BASE

Acoustone shall be applied direct to plaster or similar smooth surface.

NOTE—On existing work Acoustone is applied over any firm, standard plaster finish.

(3) ACOUSTICAL TREATMENT MATERIAL

(3a) Acoustical treatment material shall be [$\frac{3}{4}$ -in.] [1-in.] thick Acoustone (A) (D) of colors selected by the architect.

(3b) Joints between Tiles shall be [a V formed by accurately beveling the tile edges] [as detailed] [specify].

(3c) Tiles on walls and fields of ceilings shall be of size, shape, disposition and color as shown on the various details and approved shop drawings.

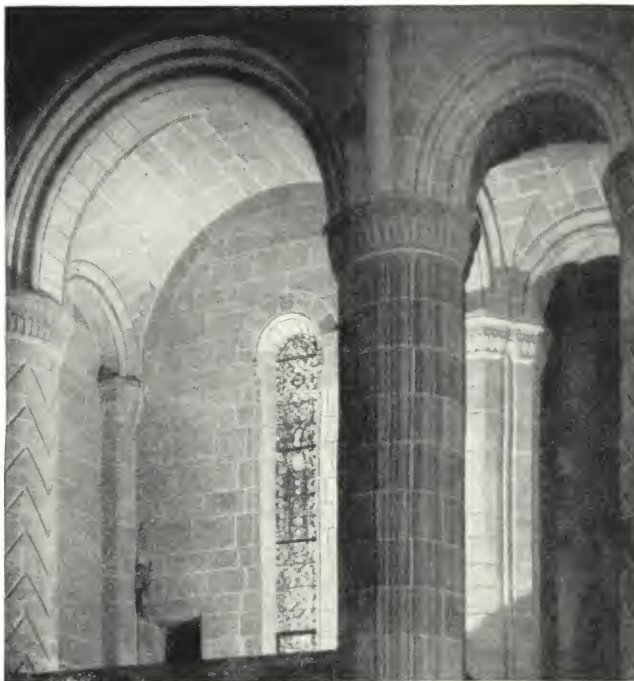
(4) APPLICATION of ACOUSTONE

(4a) Acoustone shall be completely erected by the United States Gypsum Company or one of its authorized erectors of sizes, colors and pattern shown on the drawings and details.

(4b) The Tile shall be laid close, accurately cemented in position in full conformance with the manufacturer's specifications.

SHORT FORM

The contractor shall allow the sum of \$..... to cover the cost of acoustical treatment, using Acoustone to be furnished and erected by the United States Gypsum Company or one of its authorized erectors as directed and approved by the architect.



Church of the Holy Child, Philadelphia, Pa.
Geo. I. Lovatt, Architect
Acoustone used on curved surfaces



Corridor in Orthopedic Hospital, Chicago, Ill.
Coolidge and Hodgson, Architects
Ceilings of Acoustone absorb sound and reduce noise

TYPICAL ACOUSTONE PATTERNS

Combinations of Various Colors and Sizes

Acoustone May Be Obtained, on Order, Integrally Colored to Special Shades



SABINITE* ACOUSTICAL PLASTER

Incombustible • Economical

• • •

PHYSICAL CHARACTERISTICS

TYPES—

Sabinite A—For general use on ceilings or above wainscots.

Sabinite B—For troweling to a smooth hard surface, readily cleanable on wainscots or wall surfaces exposed to abrasion.

Sabinite 38—Specially developed to resist moisture in natatoriums, shower rooms, laundries, etc., when applied over Oriental Exterior plaster base. (See below.)

COMPOSITION—Sabinite Acoustical Plaster is a permanent, reasonably priced, sound-absorbing plaster. Sabinite A is substituted, over the standard scratch and brown coats, for hard, sound-repellent plaster finishes. Sabinite No. 38 is applied over Oriental Exterior Stucco base coats where extreme humidity, as in Natatoriums, is present. Gypsum base coats may be used where humidity is less severe but consult manufacturer first. Sabinite absorbs sound because of its great multitude of tortuous, minute passages, which have their start in tiny openings at its surface.

ABSORPTION—Coefficients below are by the Official Laboratories of the Acoustical Materials Association:

Sabinite Type	Thickness	128 Cyc.	256 Cyc.	512 Cyc.	1024 Cyc.	2048 Cyc.	Red. Coef.
A	1/2-in.	.34	.30	.31	.61	.69	.50
A	3/4-in.	.36	.37	.55	.67	.67	.55
38	1/2-in.	.25	.26	.32	.60	.76	.50

THICKNESS—Applied 1/2-in. thick in two successive coats, or 3/4-in. thick in three coats—each 1/4-in. thick, with the usual plasterer's tools.

APPEARANCE—Sabinite presents an interesting surface texture similar to a pebbled, semi-smooth stucco. Sabinite A may be left with a troweled finish.

COLORS—Both Sabinite A and No. 38 are furnished in white and four standard colors or tints: ecru, ivory, cream, buff. Special colors will be furnished on orders exceeding 5 tons. On small orders, Sabinite may be tinted to special colors on the job.

It can be painted or decorated after application without loss of efficiency. (See specifications, page 19.)

INCOMBUSTIBLE—Composed of inorganic aggregates bonded together with gypsum plaster, long known as a fireproofing material, it is incombustible.

DURABLE—Sabinite Plaster is as rugged and durable as the ordinary sand float finish.

It is unaffected by dampness and does not shrink or swell with climatic changes.

SANITARY—Because it contains no vegetable or animal matter, Sabinite is sanitary. Like any gypsum plaster it is vermin proof.

DISTRIBUTION—Sabinite is made at the principal mills of the United States Gypsum Company, conveniently located for lowest transportation costs and quick delivery.

COVERING CAPACITY—One ton of Sabinite A applied in two coats, each 1/4-in. thick, will cover a surface of from 100 to 110 sq. yds. The average plasterer can apply 100 sq. yds. of Sabinite A to full specifications in 11 hours.

To mix this material, including delivery to the mechanic, requires but 7 hours of labor.

A ton of Sabinite No. 38 covers from 60 to 75 yards and requires 14 hours of a plasterer's time and 8 hours of mixing labor per 100 sq. yds.

APPLICATION and SUPERVISION—It is applied by the plastering contractor in lieu of the usual finish. Its installation is always supervised by an experienced representative of the United States Gypsum Company.

EASY TO APPLY—Nothing but water is added to make Sabinite ready for application. It spreads with a trowel from the hawk, like ordinary plaster and bonds easily and firmly to the base coat.

ECONOMICAL—The low cost of the material, ease of application and excellent covering capacity, coupled with its relatively high sound absorption, makes Sabinite a most economical material.

*Registered Trade-Mark

Specifications • SABINITE ACOUSTICAL PLASTER

NOTE—Notes are explanatory or advisory only and should not be included in the specifications.

(1) WORK INCLUDED

NOTE—List and locate all walls and ceilings to be covered with Sabinite Acoustical Plaster. If Sabinite A, B and Sabinite No. 38 are used, list and locate separately. If different colors of integrally tinted Sabinite are used, specify the colors for the various areas.

(2) GROUNDS

On walls, in addition to the usual grounds set for the scratch and brown coat plaster base, set additional [$\frac{1}{2}$ -in.] [$\frac{3}{4}$ -in.] thick grounds to assure proper thickness of the Sabinite and form nailing for wood trim, etc. All corner beads shall be set to conform to the increased plaster thickness.

(3) ACOUSTICAL TREATMENT MATERIAL

(3a) Acoustical Treatment material shall be [Sabinite A] [Sabinite B] [and] [No. 38] Sabinite Acoustical Plaster as manufactured by the United States Gypsum Company.

(3b) Sabinite shall be integrally tinted by the manufacturer at the mill.

NOTE—Integrally tinted Sabinite should be a shade lighter than the same color would be in paint because the texture of Sabinite casts a slight darkening shadow.

(4) SCRATCH and BROWN COAT BASE

(4a) **SABINITE A and B**—All surfaces to receive Sabinite A [and B] shall be given scratch and brown coats of gypsum plaster con-

taining no more than two parts of sand (by wt.) to one part of plaster.

(4b) **SABINITE No. 38**—Hydraulic Sabinite shall be applied over [Oriental Exterior Stucco] [Gypsum] Base Coat.

NOTE—Oriental Interior Stucco Base Coat is a prepared material requiring no sand or other addition except water. It is applied in two coats in place of the regular scratch and brown coats. Use where humidity is severe.

(4c) The scratch coat shall be thoroughly broomed before the second or brown coat is applied. The second or brown coat shall be deeply raked after straightening.

(5) APPLICATION of SABINITE

The application of Sabinite shall only be made under the supervision of the United States Gypsum Company.

The plastering contractor shall arrange with the nearest sales office of the United States Gypsum Company for the servicing of Sabinite and shall not commence its application until so directed by the manufacturer's service representative.

Sabinite shall be applied in [two] [three] coats each $\frac{1}{4}$ in. thick over a thoroughly dry base coat. The second [and third] coat[s] shall not be applied until the previous coat has set. The instructions of the service representative for floating and troweling each coat shall be observed throughout regardless of his presence.

PAINTING SABINITE

SPRAY PAINTING—Sabinite may be spray painted. Depending on the conditions and the effects desired the United States Gypsum Company will make definite recommendations as to the paint or spraying lacquer to be used, the type of spraying equipment best adapted to the conditions and application specifications.



Peoples Savings & Trust Bldg., Pittsburgh, Pa.
Press C. Dowler, Architect
Interior quieted with ceiling of natural Sabinite



First Church of Christ Scientist, Montclair, N. J.
Charles D. Faulkner, Architect
Correct hearing conditions obtained with Sabinite

QUIETILE*

Low Density Wood Fiber Board Absorbent

• • •

PHYSICAL CHARACTERISTICS

DESCRIPTION—Quietile is a decorative interior tile used to absorb sound and correct noisy conditions in offices, restaurants, etc., and to improve hearing in auditoriums, theatres, and buildings of similar use.

It is a wood fiber product but should not be confused with ordinary insulating tiles used primarily for insulating purposes. It has unusually low density and exceptionally high and uniform absorption. It is a homogeneous material made by a unit felting process to produce a material of high acoustical excellence. Its attractive surface is free from surface oddities and puncturing, not uncommon in acoustical materials.

ABSORPTION—Quietile classes among the high-efficiency absorbents, the one-inch thickness having a 70 per cent noise reduction through the significant pitches, 256 to 2048 cycles. This means that through these pitches it absorbs 70 per cent of all sound striking it and that the reverberation time and the noise level in the room where it is used are greatly reduced.

It is important to note in considering the efficiency of Quietile that it has unusually efficient absorption through the significant ranges. This means, for example, that it is almost equally efficient in absorbing the sound of the human voice, around 512 cycles, and the noise of a typewriter, an octave or more higher. This efficiency is especially characteristic of one-inch Quietile.

Quietile Thickness	128 Cycles	256 Cycles	512 Cycles	1024 Cycles	2048 Cycles	Reduction Coefficient
½-in.	.19	.30	.58	.64	.80	.60
1-in.	.30	.52	.73	.82	.75	.70

Absorption Coefficients are based on cemented to plaster mountings.

COLOR and TEXTURE—

Quietile is made in two standard textures and two standard colors. The textures are a sanded and a brushed surface texture. The former is a Light Cream in color and the latter is a Light Buff. On order either of these textures or surfaces will be mill-tinted to any of the five standard colors in light pastel shades of Rose, Cream, Blue, Buff, and

Green, all of which are high in light reflecting value.

Any color or mixture of colors ground in oil or japan may be applied over Quietile with a brush or spray after diluting with four parts of mineral spirits (turpentine substitute) to one part of color. Spray tinting will use less color and will usually be more economical.

SIZES—Quietile is made in three sizes—12 x 12 in., 6 x 12 in., and 9 x 18 in. Either the brushed or sanded surface or the ½-inch or 1-inch thickness can be had in these sizes. All Quietile units are finished on all four edges with a ⅜-inch bevel. Other sizes may be obtained at a slight increase in cost.

ADVANTAGES—

High Absorption—The absorption at the significant frequencies is extremely high.

Low Cost—In spite of its high efficiency, Quietile is a low cost material—so low in cost that it makes possible the use of acoustical treatment in almost any type of building where noise is a problem.

Appearance—The surface of Quietile is similar to that of other fiber tiles used primarily for decoration. It is free from perforations and other surface peculiarities that fall into a regular pattern. Its efficiency is secured by the natural surface of the tile in combination with a low and accurately controlled density. The result is an appearance just as pleasing as if the tile were made first of all for a decorative rather than an acoustical effect. This appearance is suited to any type of interior.

Easily Cleaned—Cleaning is always cheaper than redecorating. Quietile can be cleaned with a vacuum

cleaner. The mill-tinted pastel shades are deep tinted to withstand several cleanings before re-tinting becomes necessary. Painting reduces absorptive capacity and should not be resorted to. A change in color should be accomplished by tinting or staining.

Easy Erection—Quietile is easily and quickly erected in either an old or a new building.



QUIETILE • SANDED TEXTURE • ACTUAL SIZE

Specifications • QUIETILE

NOTE—Notes are explanatory or advisory only and should not be included in the specifications.

(1) WORK INCLUDED

NOTE—List here all walls and ceilings to be covered with Quietile. If more than one thickness of material is to be used, specify the thickness for the various areas.

(2) BASE

NOTE—Describe base. Quietile may be applied to the following surfaces:

(a) On new work, a good level brown coat or plaster offers the best base for Quietile.

(b) Quietile may be applied direct to any plastered surface if the plaster is in good condition.

(c) Quietile may be applied to furring strips. If this method is used with an open air space back of the furring strips, stretch a paper membrane over and attached to the strips to prevent passage of air through the tile with the resultant deposit of dirt on the tiled surface.



QUIETILE • BRUSHED TEXTURE • ACTUAL SIZE

(3) ACOUSTICAL MATERIAL

(3a) Acoustical material shall be Quietile [1 in.] [$\frac{1}{2}$ in.] thick in [a natural color] [mill tinted in standard shades] [cream] [green] [rose] [buff] [blue] and [sanded] [brushed] surface.

(3b) Joints between tile shall be a $\frac{3}{16}$ in. "V" formed by accurate beveling.

(3c) Tile shall in general be 12 x 12 in. with special sizes as shown on the various details.

(4) APPLICATION of QUIETILE

NOTE—Quietile may be applied in a diagonal or a straight pattern with a border effect if desired. Other patterns may be worked out but they will require special tile sizes.

(4a) Quietile shall be completely erected by the United States Gypsum Company or by one of its authorized erectors.

(4b) The tile shall be cemented or cemented and nailed in position, care being taken to align tile and maintain an even surface in full conformance with the manufacturer's specifications.

PERFATILE*

Incombustible Perforated Metal Pan Type

PHYSICAL CHARACTERISTICS

DESCRIPTION—Perfatile is a perforated metal tile concealing highly absorbent pads of mineral wool. The edges of the tile are beveled and returned vertically to be held firmly in place by special tee runners. The tile are painted to comply with rigid specifications and to give a finish pleasing in color, high in light reflection, and protected against abrasion due to ordinary maintenance cleaning.

The mineral wool pads are furnished either completely enclosed by a fire resistive membrane or wrapped in muslin. With the latter type the top of the construction is fully sealed with fire resistive membrane during erection. Either type of pad eliminates the so-called breathing action and avoids the accumulation of dirt on the surface which would result in a loss of absorption and an undesirable condition from the standpoint of sanitation.

ABSORPTION—In addition to its being the highest type of acoustical treatment from a construction standpoint, Perfatile is also one of the best from the standpoint of absorption efficiency. Its absorption coefficients present a fairly flat curve at the significant pitches, meaning more than average uniformity through the most important sound frequencies. Coefficients below are by the Official Laboratories of the Acoustical Materials Association.

Perfatile Type	128 Cycles	256 Cycles	512 Cycles	1024 Cycles	2048 Cycles	Red. Coef.
Muslin Wrap. Pad	.37	.52	.96	.94	.88	.85
Memb. Enc. Pad	.43	.61	.91	.88	.77	.80

Mounting: Metal supports applied to 1 x 2-in. wood furring.

*Trade-Mark

COLOR—Perfatile is painted a light ivory color, just off from dead white, to provide warmth with maximum light reflection.

SIZES—Perfatile is made in units 12 x 24 in. with a center groove which gives the effect of 12 x 12 in. units.

ADVANTAGES—

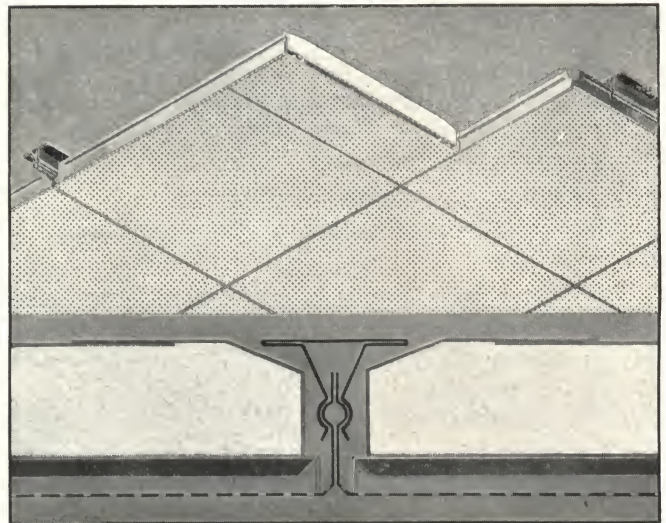
Fireproof—The metal tile and the mineral wool pads are entirely incombustible. The pad wrapping is all flame-proofed and fire resistive.

High Efficiency—The table above shows the extremely high absorption of Perfatile.

Washable—The painted metal surface of Perfatile may be washed many times before it becomes necessary to repaint it. Washing in no way affects the absorption efficiency of the tile or its appearance.

Paintable—Perfatile can be repainted many times without affecting the absorption efficiency of the construction. The perforations constitute approximately

fourteen per cent of the total tile surface, and although small enough to blend into the neutral color of the tile, they are still large enough to maintain full absorption efficiency unaffected by many paintings.



CROSS SECTION

Specifications • PERFATILE

NOTE—Notes are explanatory or advisory only and should not be included in the specifications.

(1) WORK INCLUDED

NOTE—List and locate all walls and ceilings to be covered with Perfatile.

(2) BASE

(2a) Where suspended ceiling construction is used, 1½ inch carrier channels spaced not to exceed 4 ft. on centers, shall be furnished in place by others. The 1½-inch channels shall be hung so as to present a level under-surface. Sufficient cross channels shall be wired in place across the top of the 1½-inch carrier channels to hold them in position and prevent swaying.

(2b) Where Perfatile construction is to be held against concrete joist construction, wire ties shall be furnished in place by others on not more than 4-ft. centers along all joist bottoms. These ties shall consist of two No. 10 gauge galvanized wire projecting 4 inches below joist bottom. The ties must be carefully lined up in lines at right angles to the joists.

(3) ACOUSTICAL TREATMENT MATERIAL

Acoustical treatment material shall be Perfatile, a perforated metal tile, 12 x 24 in. in size, with a center groove giving the appearance of a 12 x 12 in. tile, the edges of which are beveled and return vertically to be held firmly in place by special tee runners. The perforated metal tile shall conceal a mineral wool absorbent pad held slightly away from the perforated metal surface by means of pad support runners. The absorbent pad shall be completely en-

closed and sealed on four edges, face, and back with a flame-proof membrane. (Or the absorbent pad shall be completely wrapped in flame-proof muslin and the top sealed during erection with flame-proof membrane.)

The perforated metal tile shall have a prime and finish coat of baked enamel on the back, and on the face a prime coat, an intermediate coat, and a finish coat of baked enamel.

(4) APPLICATION of PERFATILE

(4a) **SUSPENDED CEILING CONSTRUCTION**—The acoustical contractor shall wire or clip the special tee runners to the under-surface of the 1½-inch carrier channels, furnished in place by others, spacing the tee runners on 24-inch centers to hold the perforated metal tile. Perforated metal tile, pad supports, and absorbent pad shall be carefully assembled and pressed into position on the special tee runner. All edges shall be kept in alignment and care must be taken to secure a level under-surface. A suitable moulding shall be furnished in place by [the acoustical contractor] [others] at the junction of the perforated tile ceiling with the walls and columns. Care shall be taken in cutting and fitting the tile around all openings.

(4b) PLASTERED CEILING CONSTRUCTION—

NOTE—Same as in (4a) except that the special tee runners shall be attached to the present ceiling by means of suitable clips or wire and brought to a level surface.

SHORT FORM

Perfatile treatment shall be furnished and erected by the United States Gypsum Company or one of its authorized erectors on all areas indicated on plans to receive acoustical treatment.

USG SYSTEM of SOUND INSULATION*

Fireproof Wall and Floor Constructions

DESCRIPTION

PURPOSE—To prevent the passage of sound from one room to another.

THEORY and DESCRIPTION—Sound passes through a wall, floor or ceiling by vibrating it as a diaphragm. The sound strikes it and sets it into vibration. This vibration sets up new sound waves, reduced in intensity on the opposite side. The USG System of Sound Insulation is built upon the principle of providing room boundaries in which one side can vibrate while the other side does not. This is accomplished by constructing a furred surface supported on springs.

The regular plastering system is applied directly to the spring supported furring. Concrete floors may be poured on the resiliently supported sleepers (see details, page 24).

ADVANTAGES—The USG System of Sound Insulation possesses the following advantages over other methods of sound insulation.

(1) **Permanence**—The efficiency of this construction, being primarily obtained by steel spring devices, is maintained permanently.

(2) **Fireproofness**—Only incombustible materials, steel and gypsum, are employed.

(3) **Economy**—Because of its simplicity of construction, the USG System of Sound Insulation offers a maximum of efficiency at a reasonable cost.

SALE and INSTALLATION—The USG System of Sound Insulation in Fireproof Construction is sold and installed only by the United States Gypsum Company or its authorized erectors which assures undivided

responsibility for the results. All work is installed by trained mechanics under strict supervision.

ITEMS FURNISHED and INSTALLED—The following items are furnished and installed in the USG System of Sound Insulation (See details, page 24).

Ceilings—Resilient Saddles, 1½-in. Channel Runners, Furring Runners, Rocklath, Thermofill.

NOTE—We do not include plaster or hanger rods. Hanger rods should be furnished by others, 2 by 4-ft. centers with first hanger 6 in. from all walls.

Walls—Resilient Wall Clips, Furring Runners, Rocklath, Cornerite.

NOTE—We do not include tile walls or plaster.

Floors—Resilient Sleeper Chairs with tie wire and grout, Metal Sleepers, Thermofill, Metal Ts, Rocklath, metal lath and concrete slab.

NOTE—We do not include the finished flooring.

SPACE REQUIRED—The space required for the installation of the USG System of Sound Insulation is as follows:

Ceiling—Not less than 6 in. to the bottom of Rocklath.

Walls—2½ in. from the face of tile wall to outside face of Rocklath.

Floor—5 in. from the top of the floor slab to the top of the concrete slab to receive flooring.

Specifications • SHORT FORM

NOTE—Notes are explanatory or advisory only and should not be included in the specifications.

NOTE—This specification should be included under a separate heading of "Sound Insulation"

(1) WORK INCLUDED

NOTE—Here list and locate clearly the walls, floors and ceilings to be treated. Also indicate the following areas clearly on the plans:

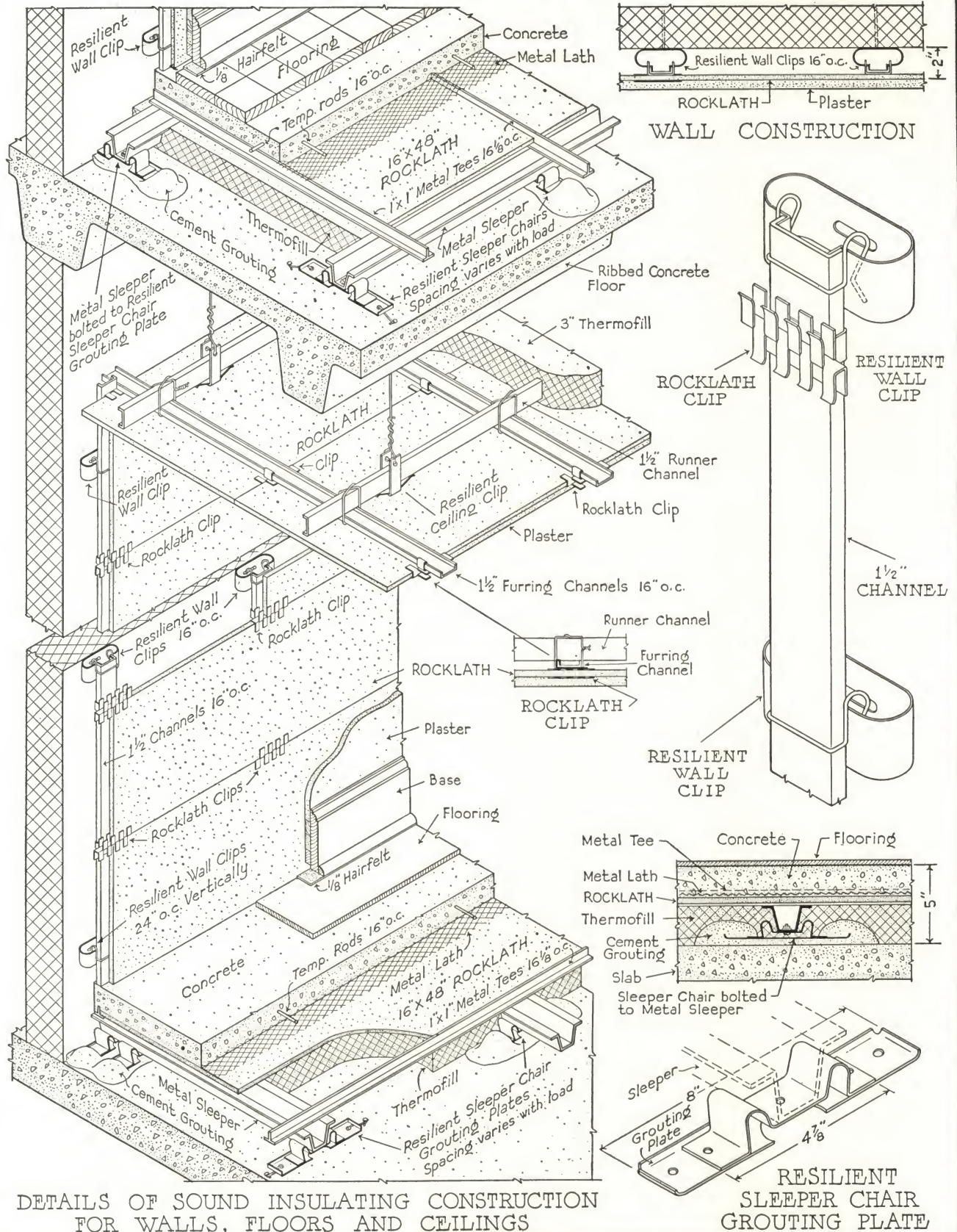
Indicate partitions by heavy black line on the side to be insulated. Indicate floors and ceilings on room schedules and by notations on floor plans and sections.

(2) SOUND INSULATION

The sound insulation as above listed and shown on plans shall be the USG System of Sound Insulation furnished and installed by the United States Gypsum Company, 300 West Adams Street, Chicago, Ill., or its authorized erectors.

*Trade-Mark

USG SYSTEM OF SOUND INSULATION



TREMBAR RESILIENT MACHINERY MOUNTINGS

DESCRIPTION

PURPOSE—To prevent the transmission of noise and vibration from motors, motor generators, ventilating equipment, printing presses, and many other types of machinery, all of which frequently produce annoyance through vibration or noise.

DESCRIPTION—Trembar* Sound Insulative Machine Base has been especially designed for use under machinery of all kinds to localize vibration and the resultant noise.

Its construction is essentially that of a rigid platform supported on very sensitive steel springs. These resilient springs float the machine so that practically none of its vibration is transmitted to the floor upon which the machine rests. The platform has no connection of any kind with the floor except through the resilient springs. The action of the springs in the base might be likened to those in an automobile which float the body of the car free from the vibration produced in the running gear by the road.

ADVANTAGES—Trembar Resilient Machinery Mountings possess the following advantages:

(1) **Adaptability**—Each base is especially designed and built for the piece of equipment to be supported. The major factors in determining the area of the base are the horizontal projections of the machine, the weight of the machine, the relative position of the center of gravity and the R.P.M. of the machine. The number and type of spring units are determined by the weight of the machine base and the R.P.M. of the machine. The base is adapted to the machine it carries.

(2) **Economy**—By the use of this base, equipment can be placed in that part of the building most desirable from the standpoint of efficiency and economy, without regard to the possibility of disturbances to adjacent rooms.

(3) **Structures with Mixed Occupancy**—Trembar Bases so fully free buildings from the vibration and noise produced by machinery that it is possible to include space for manufacturing in office buildings without causing the least annoyance to tenants.

(4) **Hotels and Hospitals**—The machinery necessary to the operation of these buildings may be quieted by the use of Trembar Mountings under all rotating or oscillating equipment.

(5) **Installation**—Bases are shipped ready for installation by others, or they will be installed complete

by the Engineering Sales Division of the United States Gypsum Company or its authorized erectors.

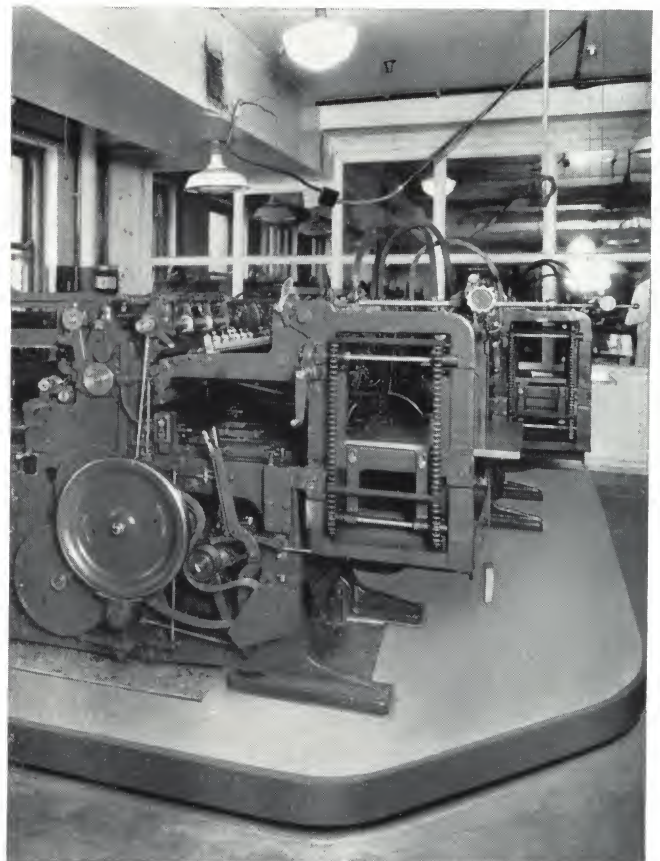
DEMONSTRATED ACCOMPLISHMENTS—Trembar Vibration Isolating Equipment is in successful operation in the United States Navy, Coast Guard Vessels; Bureau of Standards; most of the newer broadcasting stations; and in many hotels, hospitals, apartments, office buildings, and factories. It is completely adaptable to practically any vibration problem.

Specifications

SHORT FORM

NOTE—List under heading of "Sound Insulation."

Under all [name and describe items of equipment to be insulated] the [specify which] contractor shall install Trembar Resilient Machinery Mountings as designed and manufactured by the United States Gypsum Company.



*Trade-Mark

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